

REMARKS

In the Office Action, the Examiner has rejected claims 1, 3, 6, 9, 12 and 18 under 35 U.S.C. § 102(e) as being anticipated by Fuller et al. Also, the Examiner has rejected claims 1, 7, 9, 15 and 18 under 35 U.S.C. § 102(b) as being anticipated by Bicos. In addition, the Examiner has rejected claims 1, 7, 9, 15 and 18 under 35 U.S.C. § 102(b) as being anticipated by Baz and claims 7-9 and 11 have been rejected under 35 U.S.C. § 103(a) as being obvious in view of various references and reference combinations.

In this Amendment B submitted in response to the Office Action, arguments are presented below to clearly distinguish the present invention as currently claimed in independent claims 1, 15 and 18 from the cited references.

Claims 1, 3, 6-9, 11, 12, 15 and 18 remain pending.

Rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103

As indicated above, claims 1, 3, 6, 9, 12 and 18 have been rejected by the Examiner under 35 U.S.C. § 102(e) as being anticipated by Fuller et al. As currently pending, independent claim 1 recites, *inter alia*, a device for reducing vibration in a section of material comprising an active damper located at a first distance from the material, a passive damper located at a second distance from the material, wherein the second distance is greater than the first distance, and a constraining layer in contact with the passive damper. In a somewhat similar manner, independent claim 18, as amended, now recites the step of bonding an actuator having active damping means, passive damping means and a constraining means in contact with the passive damping means to a desired portion of a section of material. No such structure or cooperation of structure is disclosed by the cited reference (i.e. Fuller et al.). In particular, Fuller et al. fail to teach or suggest a constraining layer in contact with the passive damper.

Instead, and quite unlike the present invention, the scheme suggested by Fuller et al. includes an active layer such as PVDF in combination with a mass layer such as a thin sheet of lead. The Fuller et al. reference, itself, compares its Distributed Active Vibration Absorber (DAVA) with a system having a constrained layer damping material and distinguishes its DAVA

from such a system (see Fuller et al., Col. 14, lines 37-65). As indicated in previously submitted Amendment A, the Fuller et al. reference, at best, affirmatively discloses an active damper and several thin sheets of lead stacked on top of each other. There is no positive disclosure indicating that one thin sheet in the stack may be lead and another may be a different material such as aluminum, steel or composite fiberglass. Simply put, there is no teaching or suggestion in Fuller et al. that multiple materials may be used in a single stack. Moreover, the stack is disclosed and described as a "mass layer" to establish a mass distribution, and, the only distributed mass layer shown is a stack having a single material, i.e. lead, (see, for example, Fig. 23 of the Fuller et al. reference).

The Examiner's rejection rests on his assertion that the "several thin sheets of lead stacked on top of each other" that are described as a distributed mass layer in the Fuller et al. reference constitute *both* a passive damper *and* a constraining layer in contact with the passive damper. Attorney for Applicant respectfully disagrees. In support of his proposition, the Examiner has indicated that Applicant has not clearly defined a constraining layer. Again, Attorney for Applicant respectfully disagrees. The concept of a constraining layer is adequately explained in the specification of the present application such that a person of ordinary skill in the art would clearly understand its meaning. Moreover, all of the references cited by the Examiner, i.e. Fuller, Bicos and Baz all disclose and discuss the constraining layer concept, thus, further buttressing the fact that the meaning of the terms "constraining layer" and "constrained layer" have established meanings that are clear to those skilled in the art. With this established meaning, it is clear that "several thin sheets of lead stacked on top of each other" do not constitute a constraining layer in contact with a passive damper. Attorney for Applicant further respectfully contends that it is incorrect for the Examiner to disregard the word "constraining" in claims 1 and 18 as being unclear, and instead, apply a reference that simply has a "layer" as applicable prior art. In short, Attorney for Applicant respectfully asserts that several thin sheets of lead stacked on top of each other do not constitute a passive damper *and* a constraining layer in contact with the passive damper.

Because Fuller et al. fails to teach or suggest a constraining layer in contact with a passive damper as recited in claim 1 or a constraining means in contact with the passive damping means as recited in amended claim 18, Attorney for Applicant respectfully contends that independent claims 1 and 18 are not anticipated by Fuller et al.

The Examiner has also rejected claims 1, 7, 9, 15 and 18 under 35 U.S.C. § 102(b) as being anticipated by Bicos and claims 1, 7, 9, 15 and 18 under 35 U.S.C. § 102(b) as being anticipated by Baz. As indicated above, currently pending independent claim 1 recites, *inter alia*, a device for reducing vibration in a section of material comprising an active damper located at a first distance from the material, a passive damper located at a second distance from the material, wherein the second distance is greater than the first distance, and a constraining layer in contact with the passive damper. In a somewhat similar manner, independent claim 15 recites, *inter alia*, an actuator comprising at least one piezoelectric element, a viscoelastic portion and a constraining layer having a higher stiffness than the viscoelastic portion, wherein the device functions to reduce noise by the actuator damping specific sound modes. Also somewhat similar, independent claim 18, recites, *inter alia*, the step of bonding an actuator having active damping means, passive damping means and a constraining means in contact with the passive damping means to a desired portion of a section of material. Thus, all currently pending independent claims (i.e. claims 1, 15 and 18) require a constraining layer or means in combination with either an active damper (claim 1), an actuator damping specific sound modes (claim 15) or an active damping means (claim 18).

No such structure or cooperation of structure is disclosed by the cited references (i.e. Bicos or Baz). In particular, with regard to independent claims 1 and 18, both Bicos and Baz fail to teach or suggest an active damper or active damper means. Instead, and quite unlike the present invention, both Bicos and Baz use a piezoelectric material solely as a sensor (sensor 40 in Baz and piezoelectric element 14 in Bicos) to generate an output signal for controlling a constraining layer. Neither of these structures, (i.e. the sensor 40 in Baz or the piezoelectric element 14 in Bicos) perform an active damping function, and, as such, do not constitute an active damper or active damper means. Thus, neither reference discloses an active damper (claim 1), or an active damping means (claim 18) in combination with a constraining layer or means. Nor do the sensor 40 in Baz or piezoelectric element 14 in Bicos constitute an actuator damping specific sound modes (as recited in claim 15) since the sensors merely output a control signal and do not actually perform a damping function. Thus, neither reference discloses an actuator damping specific sound modes in combination with a constraining layer or means.

In view of the arguments presented above for distinguishing independent claims 1, 15 and 18 of the present invention from the cited references, Fuller et al., Bicos and Baz, Attorney for

Applicant respectfully contends that independent claims 1, 15 and 18 are now allowable. Further, since claims 3, 6, 9-10 and 12 depend either directly or indirectly from independent claim 1, they are likewise allowable. For the reasons set forth above, Applicant believes that the basis for rejecting claims under 35 U.S.C. § 102 and 35 U.S.C. § 103 has been overcome and the rejections should be withdrawn.

In conclusion, Applicant respectfully asserts that claims 1, 3, 6-9, 11, 12, 15 and 18 are patentable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-385-5298 for any reason that would advance the instant application to issue.

Respectfully submitted,



Matthew K. Hillman, Reg. No. 45,892

January 30, 2006

Cymer, Inc.
Customer No. 21773
Telephone: (858) 385-5298
Facsimile: (858) 385-6025